

U.S. Department of the Interior
U.S. Geological Survey

Source Identification and Fish Exposure for Polychlorinated Biphenyls Using Congener Analysis from Passive Water Samplers in the Millers River Basin, Massachusetts

Water-Resources Investigations Report 00-4250



Prepared in cooperation with the
MASSACHUSETTS DEPARTMENT OF ENVIRONMENTAL
PROTECTION
and the
MASSACHUSETTS DEPARTMENT OF ENVIRONMENTAL
MANAGEMENT



Department of
Environmental Protection



**APPENDIX A: Polychlorinated Biphenyl Congener
Names and International Union of Pure and Applied
Chemistry (IUPAC) Numbers in Gas-Chromatograph
Domain Order**

Appendix A. Polychlorinated biphenyl congener names and International Union of Pure and Applied Chemistry (IUPAC) numbers in gas-chromatograph domain order

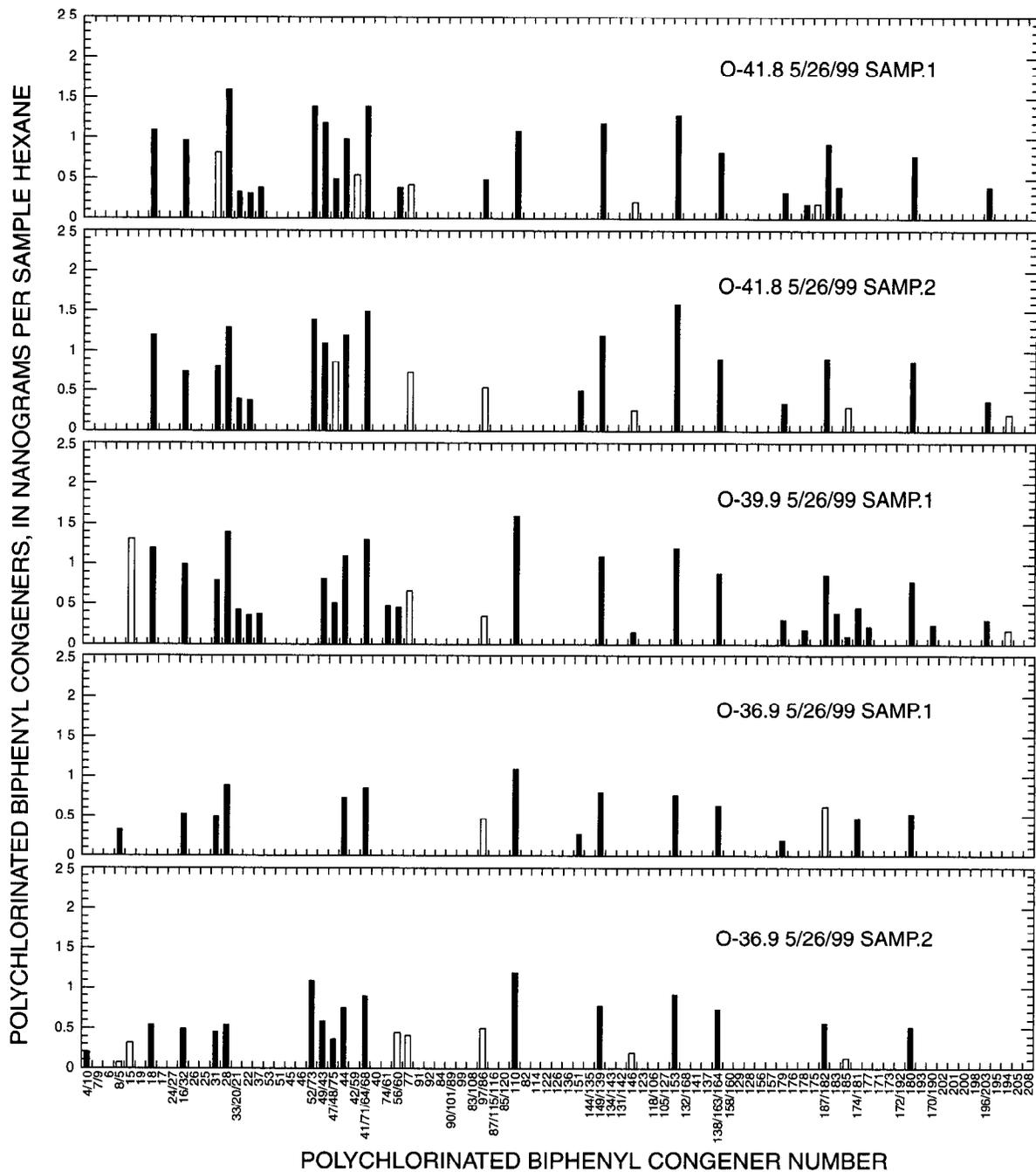
[No., number]

Domain	IUPAC No.	Congener name	Domain	IUPAC No.	Congener name
1	4	2,2'-Dichlorobiphenyl	30	56	2,3,3',4'-Tetrachlorobiphenyl
1	10	2,6-Dichlorobiphenyl	30	60	2,3,4,4'-Tetrachlorobiphenyl
2	7	2,4-Dichlorobiphenyl	31	77	3,3',4,4'-Tetrachlorobiphenyl
2	9	2,5-Dichlorobiphenyl	32	91	2,2',3,4',6-Pentachlorobiphenyl
3	6	2,3'-Dichlorobiphenyl	33	92	2,2',3,5,5'-Pentachlorobiphenyl
4	5	2,3-Dichlorobiphenyl	34	84	2,2',3,3',6-Pentachlorobiphenyl
4	8	2,4'-Dichlorobiphenyl	35	90	2,2',3,4',5-Pentachlorobiphenyl
5	15	4,4'-Dichlorobiphenyl	35	101	2,2',4,5,5'-Pentachlorobiphenyl
6	19	2,2',6-Trichlorobiphenyl	35	89	2,2',3,4,6'-Pentachlorobiphenyl
7	18	2,2',5-Trichlorobiphenyl	36	99	2,2',4,4',5-Pentachlorobiphenyl
8	17	2,2',4-Trichlorobiphenyl	37	83	2,2',3,3',5-Pentachlorobiphenyl
9	24	2,3,6-Trichlorobiphenyl	37	108	2,3,3',4,5'-Pentachlorobiphenyl
9	27	2,3',6-Trichlorobiphenyl	38	97	2,2',3',4,5-Pentachlorobiphenyl
10	16	2,2',3-Trichlorobiphenyl	38	86	2,2',3,4,5-Pentachlorobiphenyl
10	32	2,4',6-Trichlorobiphenyl	39	87	2,2',3,4,5'-Pentachlorobiphenyl
11	26	2,3',5-Trichlorobiphenyl	39	115	2,3,4,4',6-Pentachlorobiphenyl
12	25	2,3',4-Trichlorobiphenyl	39	116	2,3,4,5,6-Pentachlorobiphenyl
13	31	2,4',5-Trichlorobiphenyl	40	85	2,2',3,4,4'-Pentachlorobiphenyl
14	28	2,4,4'-Trichlorobiphenyl	40	120	2,3',4,5,5'-Pentachlorobiphenyl
15	33	2',3,4-Trichlorobiphenyl	41	110	2,3,3',4',6-Pentachlorobiphenyl
15	20	2,3,3'-Trichlorobiphenyl	42	82	2,2',3,3',4-Pentachlorobiphenyl
15	21	2,3,4-Trichlorobiphenyl	43	114	2,3,4,4',5-Pentachlorobiphenyl
16	22	2,3,4'-Trichlorobiphenyl	44	122	2',3,3',4,5-Pentachlorobiphenyl
17	37	3,4,4'-Trichlorobiphenyl	45	126	3,3',4,4',5-Pentachlorobiphenyl
18	53	2,2',5,6'-Tetrachlorobiphenyl	46	136	2,2',3,3',6,6'-Hexachlorobiphenyl
19	51	2,2',4,6'-Tetrachlorobiphenyl	47	151	2,2',3,5,5',6-Hexachlorobiphenyl
20	45	2,2',3,6-Tetrachlorobiphenyl	48	144	2,2',3,4,5',6-Hexachlorobiphenyl
21	46	2,2',3,6'-Tetrachlorobiphenyl	48	135	2,2',3,3',5,6'-Hexachlorobiphenyl
22	52	2,2',5,5'-Tetrachlorobiphenyl	49	149	2,2',3,4',5',6-Hexachlorobiphenyl
22	73	2,3',5',6-Tetrachlorobiphenyl	49	139	2,2',3,4,4',6-Hexachlorobiphenyl
23	49	2,2',4,5'-Tetrachlorobiphenyl	50	134	2,2',3,3',5,6-Hexachlorobiphenyl
23	43	2,2',3,5-Tetrachlorobiphenyl	50	143	2,2',3,4,5,6'-Hexachlorobiphenyl
24	47	2,2',4,4'-Tetrachlorobiphenyl	51	131	2,2',3,3',4,6-Hexachlorobiphenyl
24	48	2,2',4,5-Tetrachlorobiphenyl	51	142	2,2',3,4,5,6-Hexachlorobiphenyl
24	75	2,4,4',6-Tetrachlorobiphenyl	52	146	2,2',3,4',5,5'-Hexachlorobiphenyl
25	44	2,2',3,5'-Tetrachlorobiphenyl	53	123	2',3,4,4',5-Pentachlorobiphenyl
26	42	2,2',3,4'-Tetrachlorobiphenyl	54	118	2,3',4,4',5-Pentachlorobiphenyl
26	59	2,3,3',6-Tetrachlorobiphenyl	54	106	2,3,3',4,5-Pentachlorobiphenyl
27	41	2,2',3,4-Tetrachlorobiphenyl	55	105	2,3,3',4,4'-Pentachlorobiphenyl
27	71	2,3',4',6-Tetrachlorobiphenyl	55	127	3,3',4,5,5'-Pentachlorobiphenyl
27	64	2,3,4',6-Tetrachlorobiphenyl	56	153	2,2',4,4',5,5'-Hexachlorobiphenyl
27	68	2,3',4,5'-Tetrachlorobiphenyl	57	132	2,2',3,3',4,6'-Hexachlorobiphenyl
28	40	2,2',3,3'-Tetrachlorobiphenyl	57	168	2,3',4,4',5',6-Hexachlorobiphenyl
29	74	2,4,4',5-Tetrachlorobiphenyl	58	141	2,2',3,4,5,5'-Hexachlorobiphenyl
29	61	2,3,4,5-Tetrachlorobiphenyl	59	137	2,2',3,4,4',5-Hexachlorobiphenyl

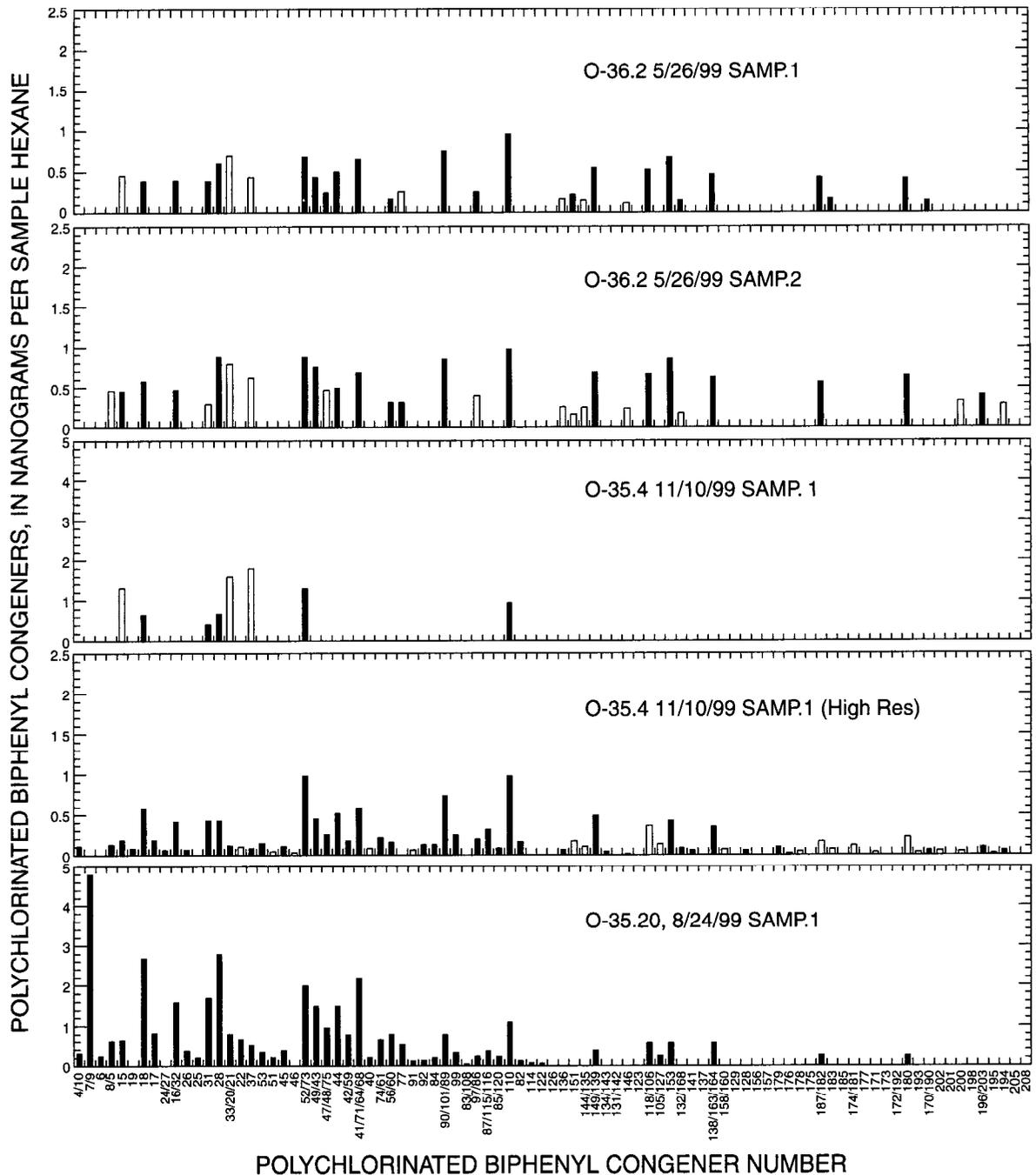
Appendix A. Polychlorinated biphenyl congener names and International Union of Pure and Applied Chemistry (IUPAC) numbers in gas-chromatograph domain order—*Continued*

Domain	IUPAC No.	Congener name	Domain	IUPAC No.	Congener name
60	138	2,2',3,4,4',5'-Hexachlorobiphenyl	75	171	2,2',3,3',4,4',6-Heptachlorobiphenyl
60	163	2,3,3',4',5,6-Hexachlorobiphenyl	76	173	2,2',3,3',4,5,6-Heptachlorobiphenyl
60	164	2,3,3',4',5',6-Hexachlorobiphenyl	77	172	2,2',3,3',4,5,5'-Heptachlorobiphenyl
61	158	2,3,3',4,4',6-Hexachlorobiphenyl	77	192	2,3,3',4,5,5',6-Heptachlorobiphenyl
61	160	2,3,3',4,5,6-Hexachlorobiphenyl	78	180	2,2',3,4,4',5,5'-Heptachlorobiphenyl
62	129	2,2',3,3',4,5-Hexachlorobiphenyl	79	193	2,3,3',4',5,5',6-Heptachlorobiphenyl
63	128	2,2',3,3',4,4'-Hexachlorobiphenyl	80	170	2,2',3,3',4,4',5-Heptachlorobiphenyl
64	156	2,3,3',4,4',5-Hexachlorobiphenyl	80	190	2,3,3',4,4',5,6-Heptachlorobiphenyl
65	157	2,3,3',4,4',5'-Hexachlorobiphenyl	81	202	2,2',3,3',5,5',6,6'-Octachlorobiphenyl
66	179	2,2',3,3',5,6,6'-Heptachlorobiphenyl	82	201	2,2',3,3',4,5',6,6'-Octachlorobiphenyl
67	176	2,2',3,3',4,6,6'-Heptachlorobiphenyl	83	200	2,2',3,3',4,5,6,6'-Octachlorobiphenyl
68	178	2,2',3,3',5,5',6-Heptachlorobiphenyl	84	198	2,2',3,3',4,5,5',6-Octachlorobiphenyl
69	175	2,2',3,3',4,5',6-Heptachlorobiphenyl	85	196	2,2',3,3',4,4',5',6-Octachlorobiphenyl
70	187	2,2',3,4',5,5',6-Heptachlorobiphenyl	85	203	2,2',3,4,4',5,5',6-Octachlorobiphenyl
70	182	2,2',3,4,4',5,6'-Heptachlorobiphenyl	86	195	2,2',3,3',4,4',5,6-Octachlorobiphenyl
71	183	2,2',3,4,4',5',6-Heptachlorobiphenyl	87	194	2,2',3,3',4,4',5,5'-Octachlorobiphenyl
72	185	2,2',3,4,5,5',6-Heptachlorobiphenyl	88	205	2,3,3',4,4',5,5',6-Octachlorobiphenyl
73	174	2,2',3,3',4,5,6'-Heptachlorobiphenyl	89	208	2,2',3,3',4,5,5',6,6'-Nonachlorobiphenyl
73	181	2,2',3,4,4',5,6-Heptachlorobiphenyl			
74	177	2,2',3,3',4',5,6-Heptachlorobiphenyl			

**APPENDIX B: Polychlorinated Biphenyl
Congeners from 31 Stations in the
Millers River Basin, Massachusetts**

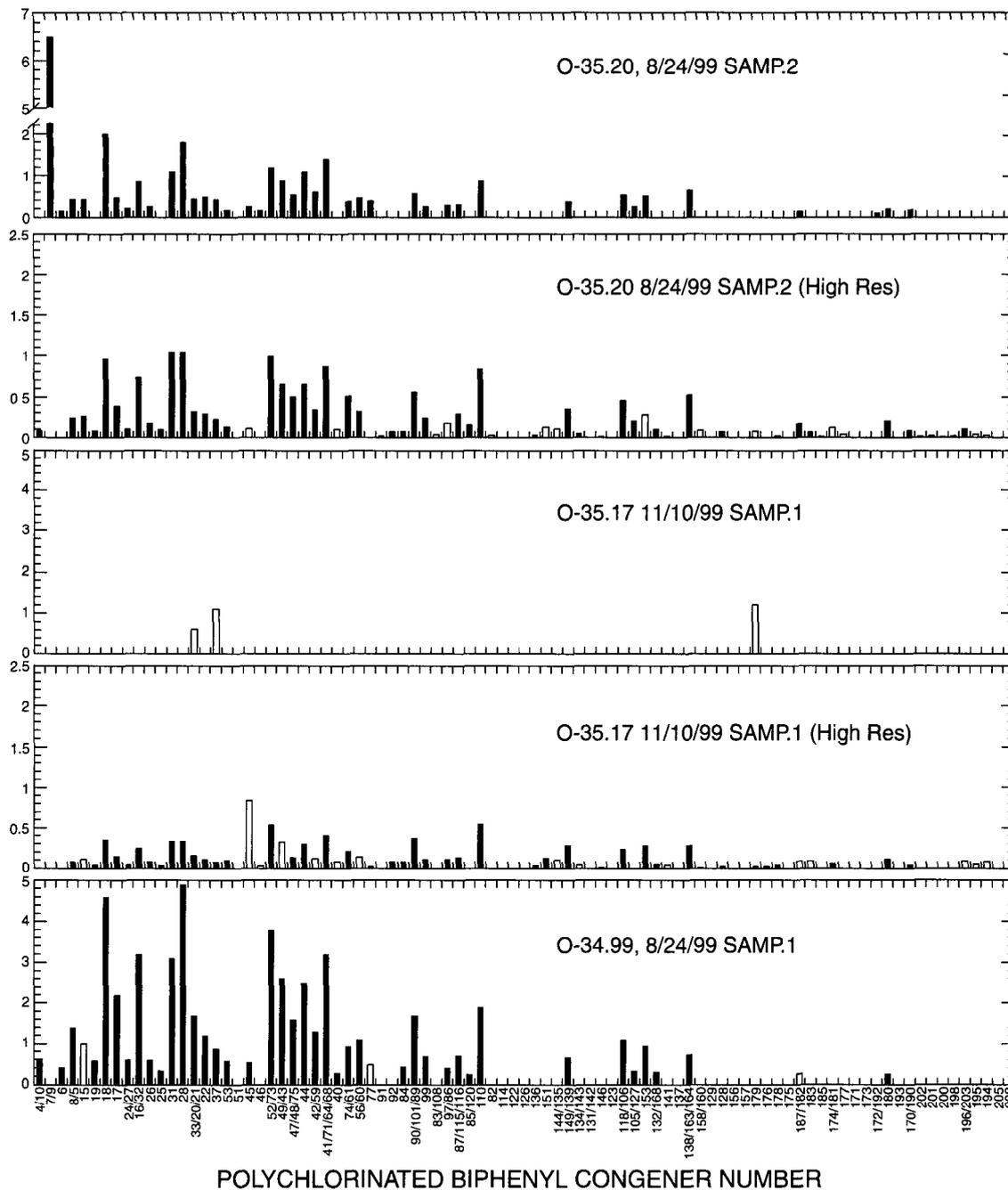


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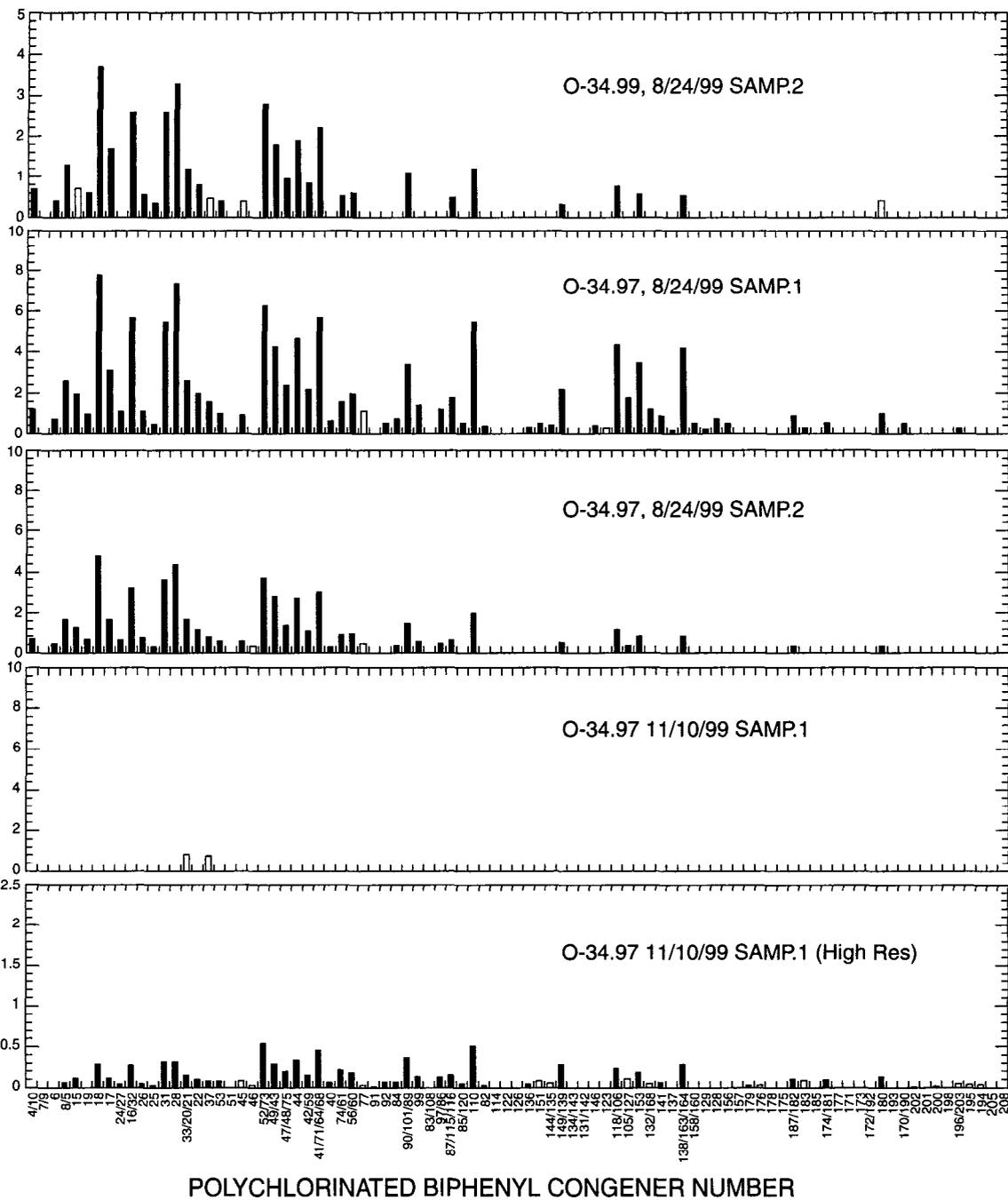
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POLYCHLORINATED BIPHENYL CONGENERS, IN NANOGRAMS PER SAMPLE HEXANE



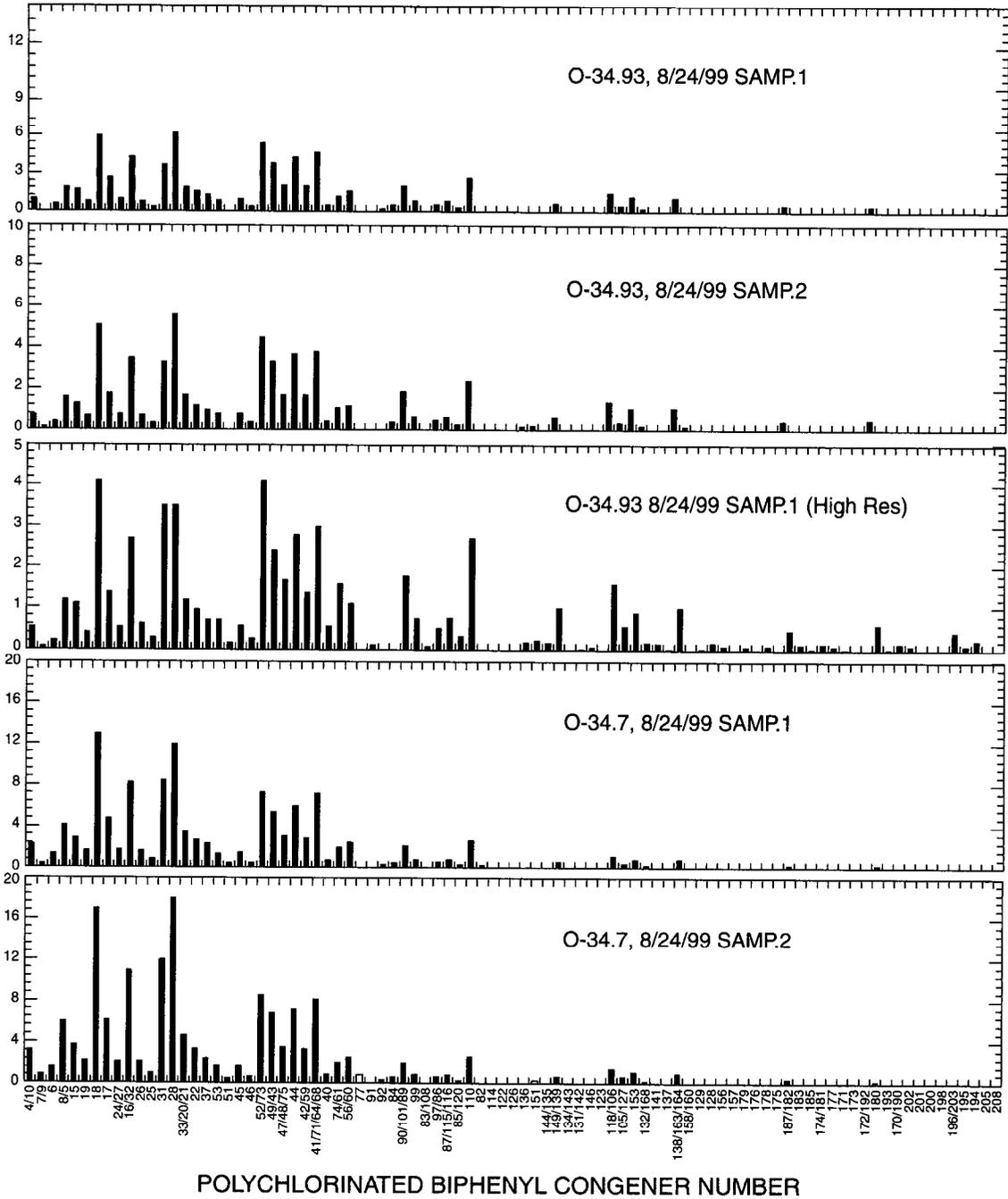
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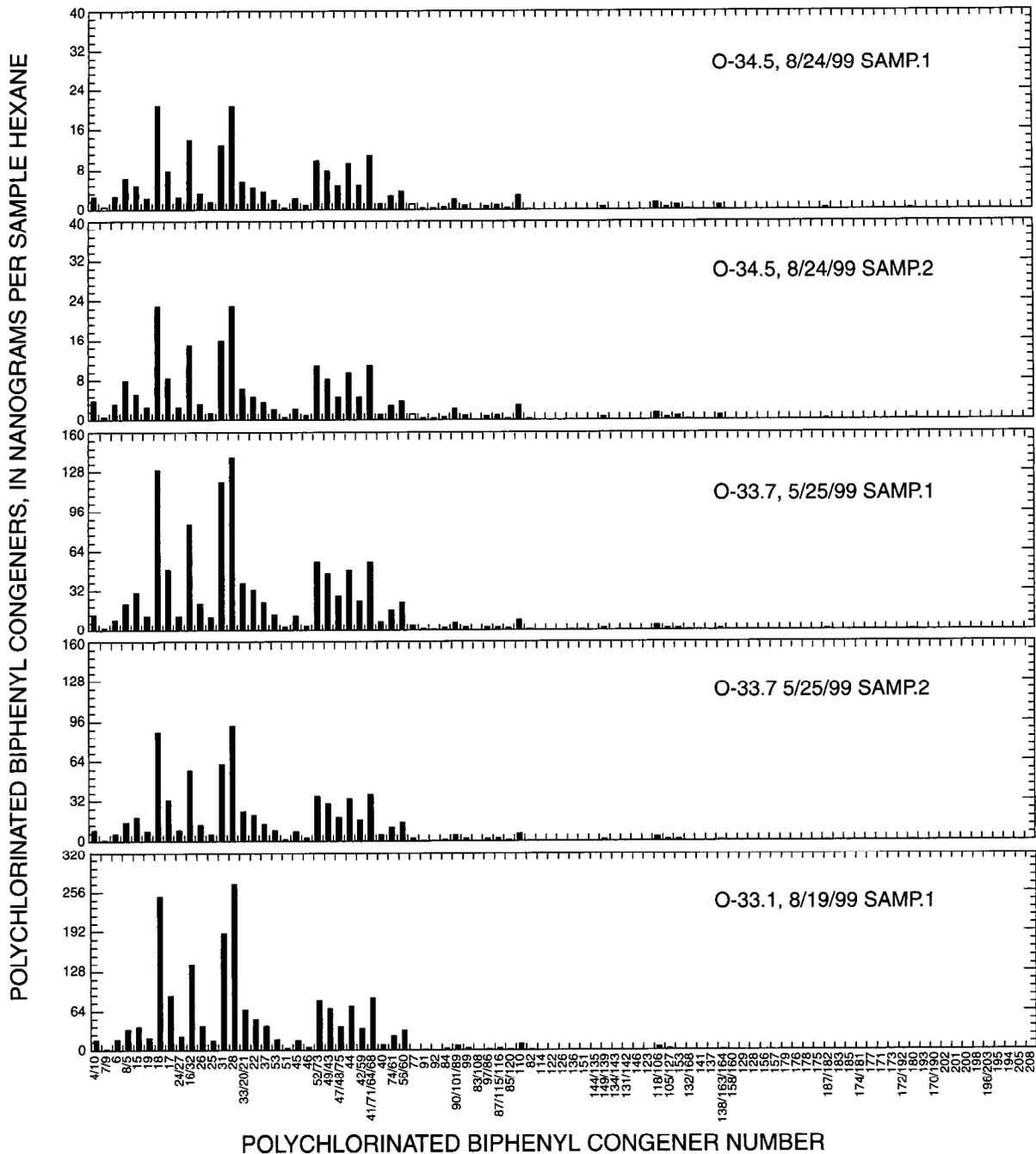


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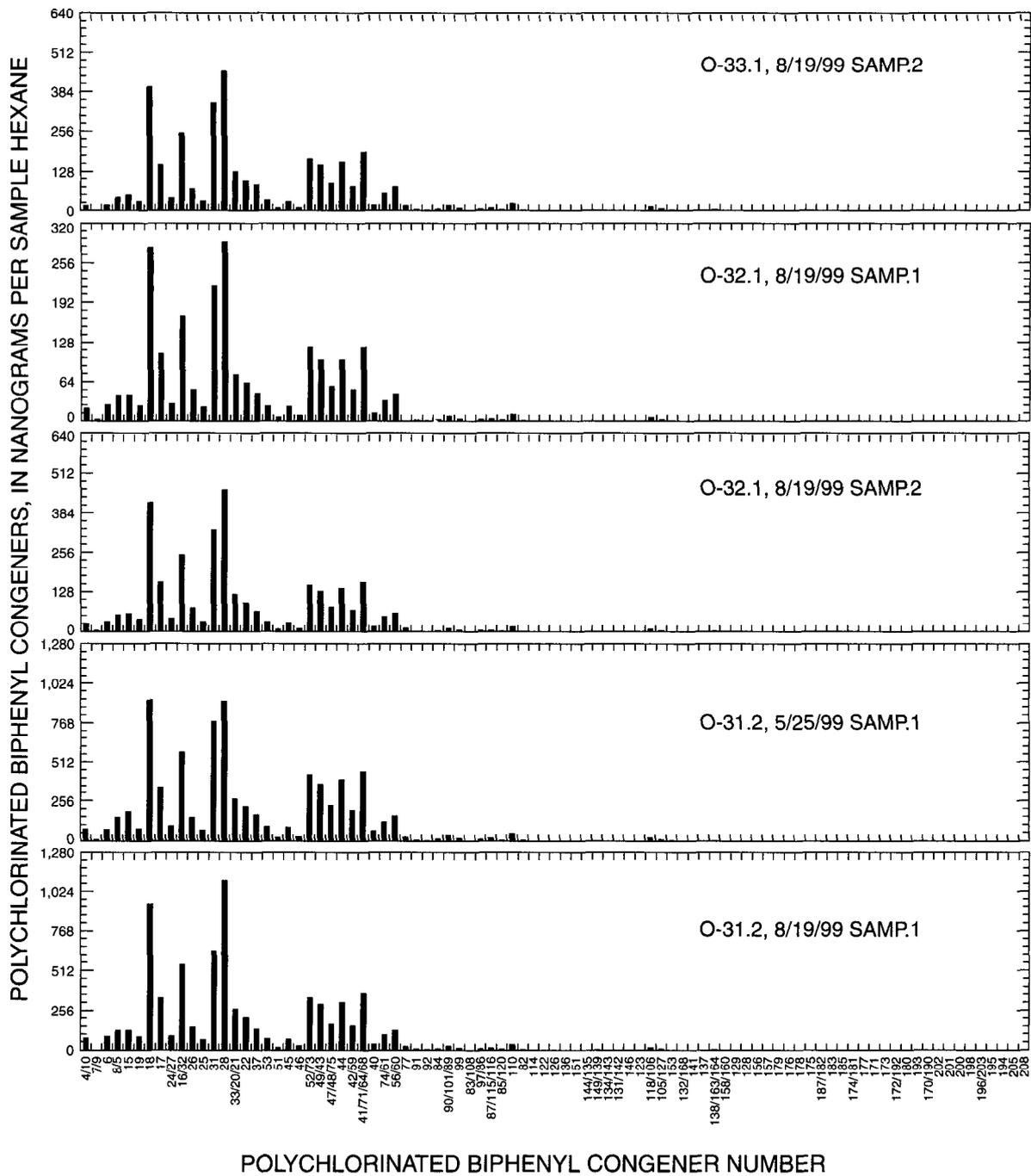
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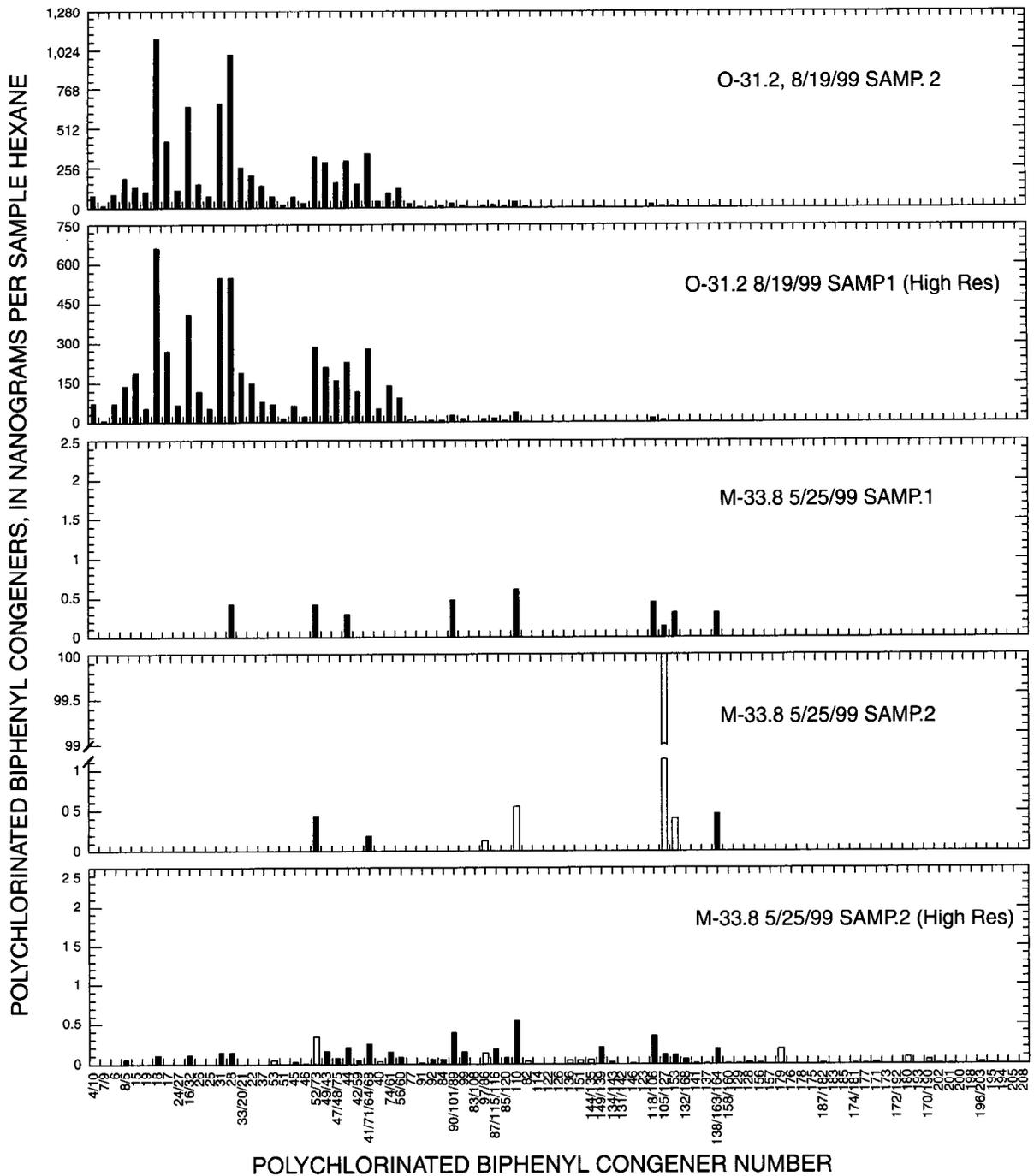
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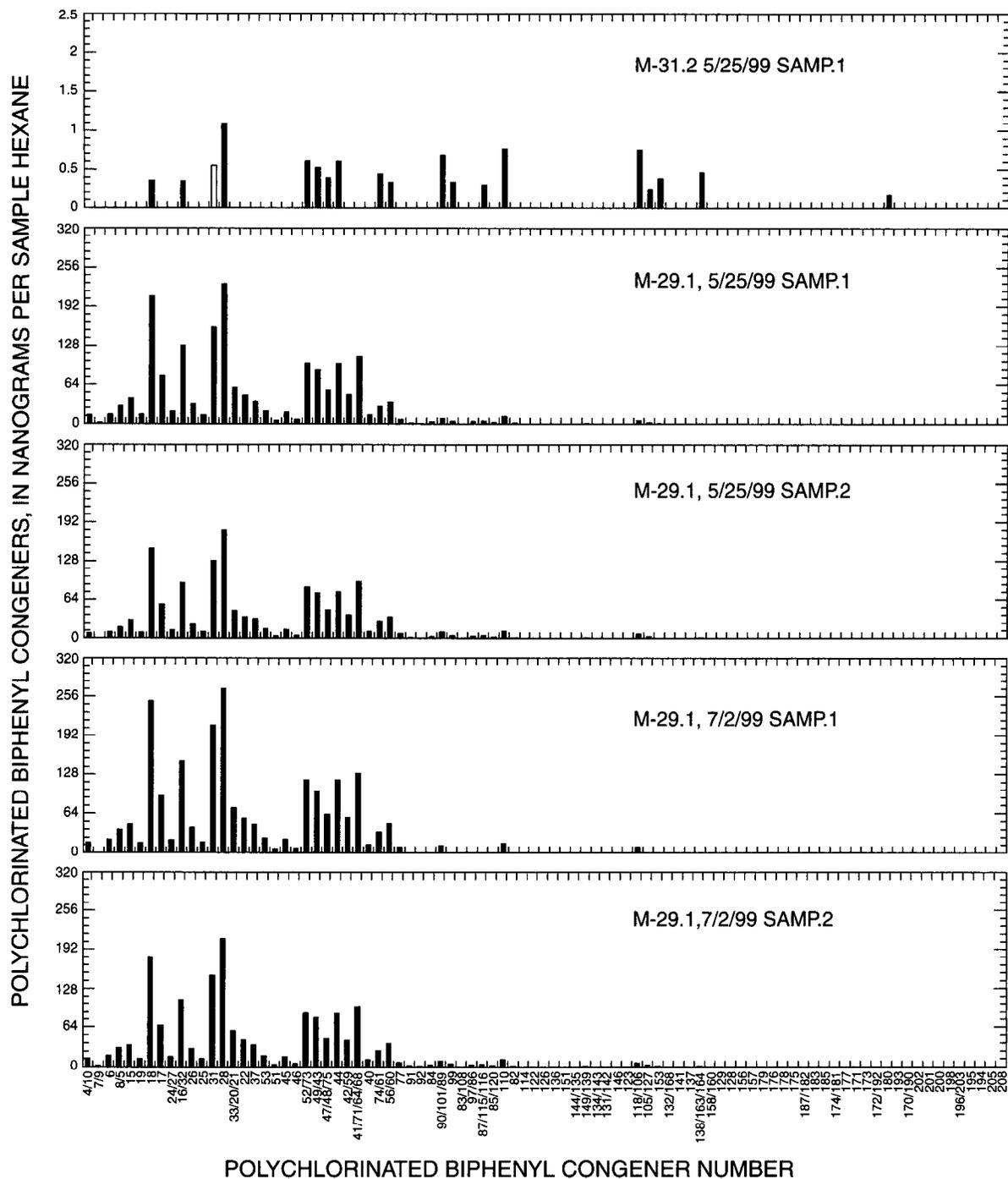
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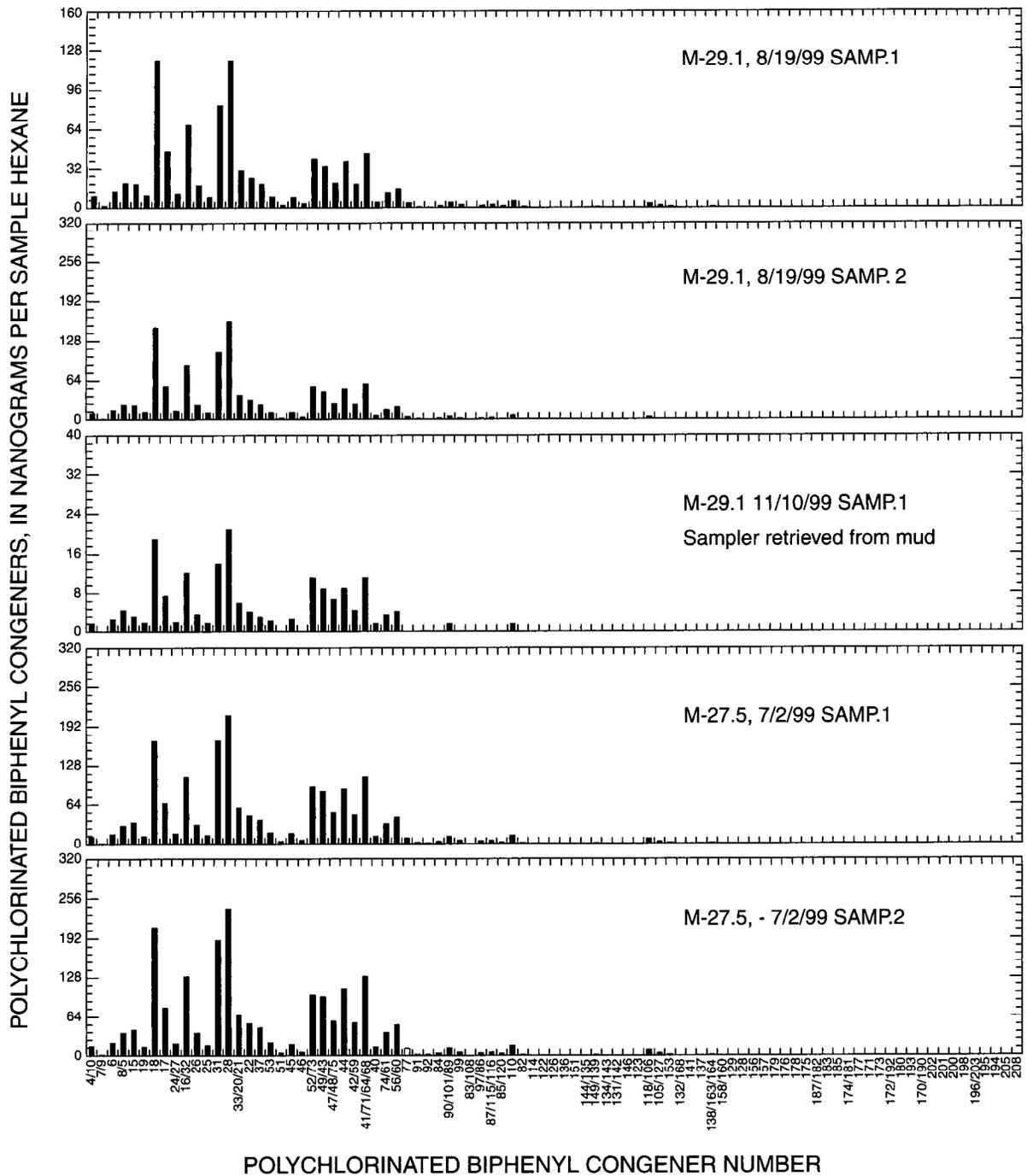
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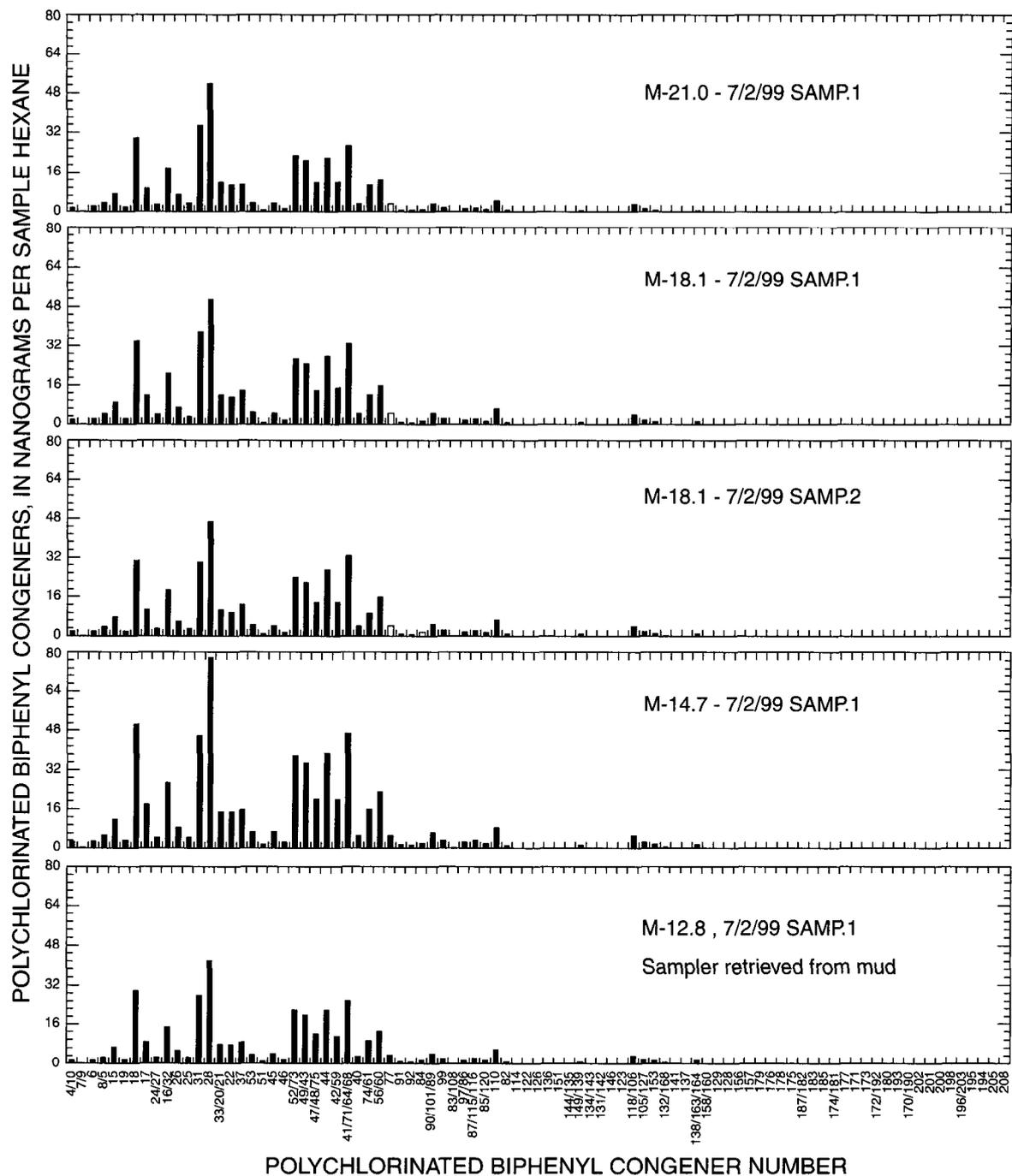
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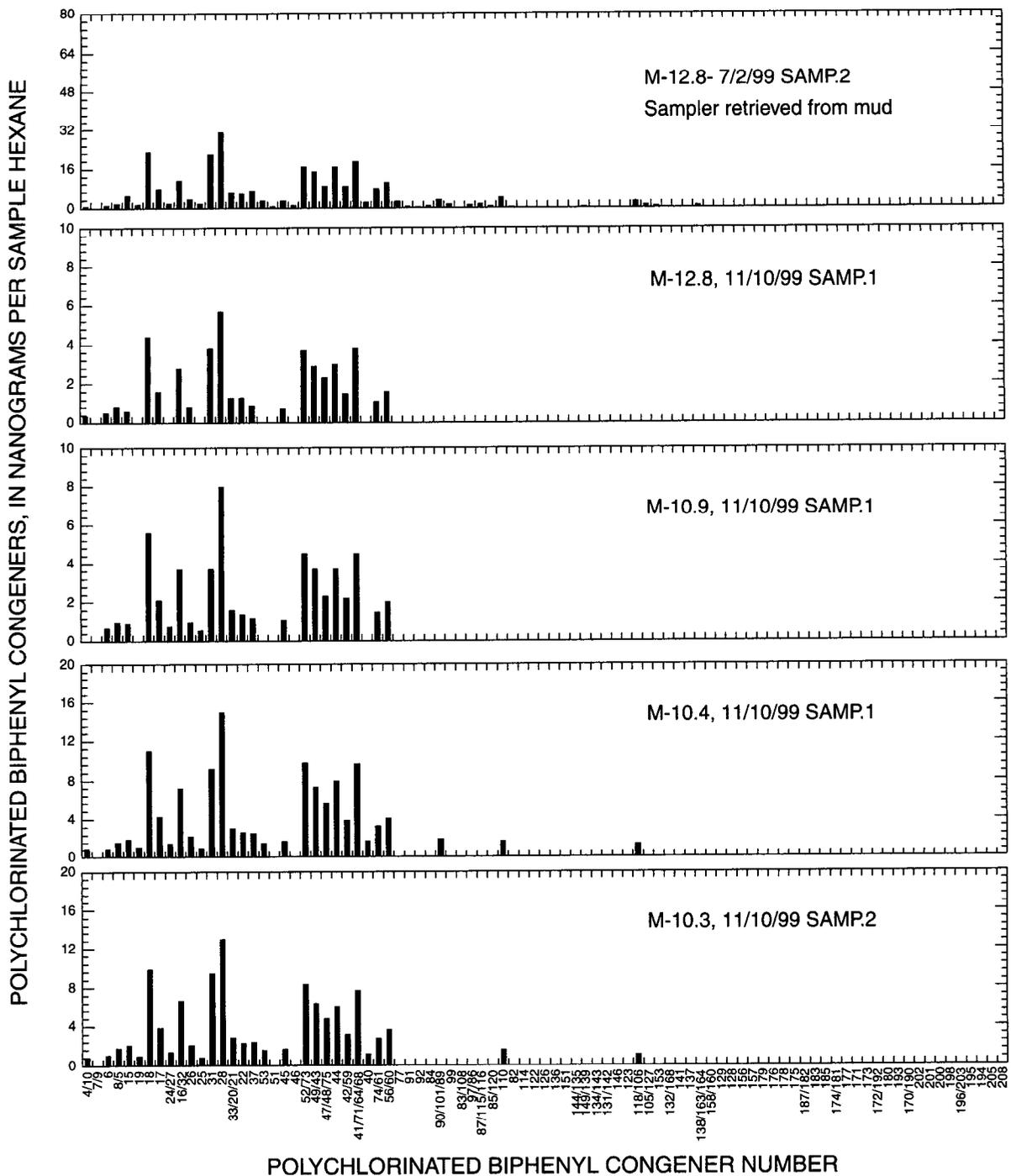
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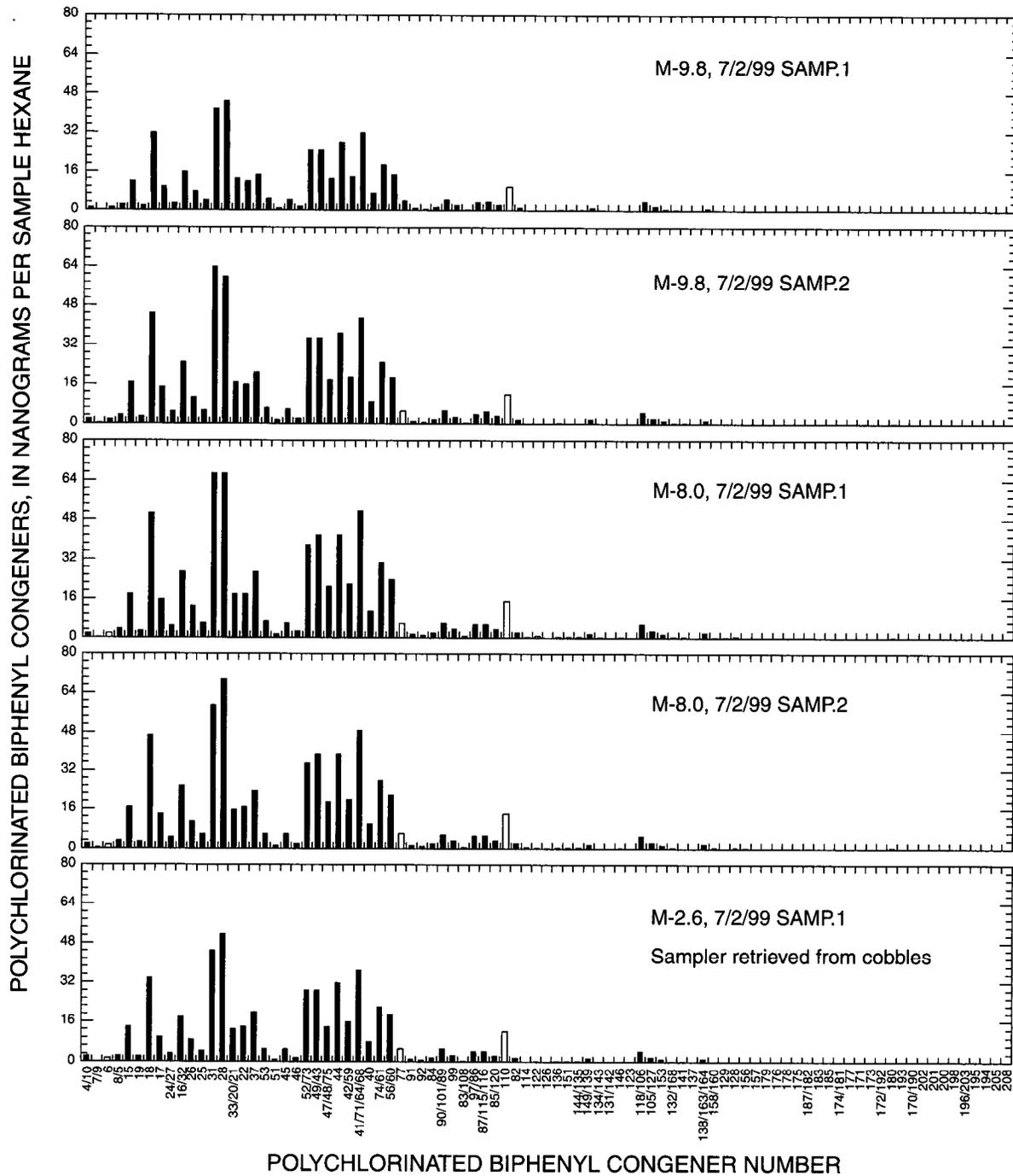
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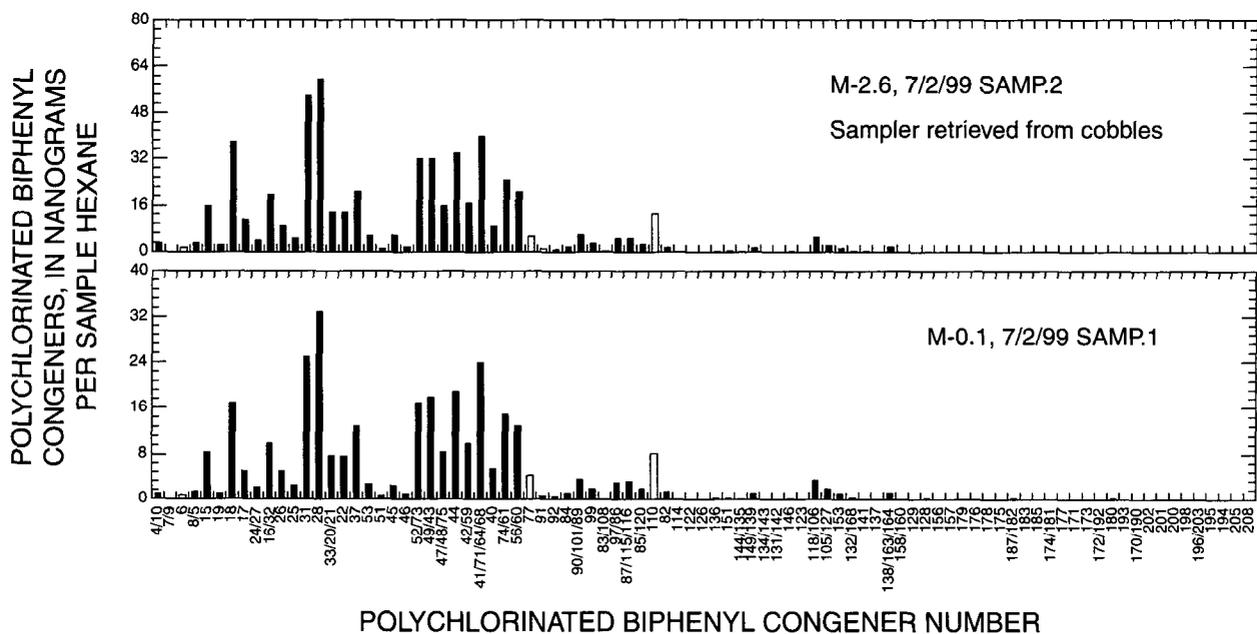
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